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The damaged or defective area aids in the removal of bonding by-products. Efficient removal of the bonding by-products improves the bonding strength since the by-products can interfere with the bonding process by preventing high-strength bond from ~~forming..~~ forming.

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Please replace the paragraph beginning at page 20, line ~~22~~ 13, with the following:

In a second embodiment, the VSE process uses wet chemicals. For example, an InP wafer having a deposited silicon oxide layer, as in the first embodiment, and a device layer are bonded to a AlN substrate having a deposited oxide layer. After smoothing and planarizing the InP wafer bonding surface and the AlN wafer bonding surface, both wafers are cleaned in an standard RCA cleaning solution. The wafers are very slightly etched using a dilute HF aqueous solution with an HF concentration preferably in the range of 0.01 to 0.2%. About a few tenths of a nm is removed and the surface smoothness is not degraded as determined by AFM (atomic force microscope) measurements. Without deionized water rinse, the wafers are spin dried and bonded in ambient air at room temperature. The resulting bonding energy has been measured to reach ~700 mJ/m^2 after storage in air. After annealing this bonded pair at 75°C the bonding energy of 1500 mJ/m^2 was ~~obtained.,~~ obtained. The bonding energy has been measured to reach silicon bulk fracture energy (about 2500 mJ/m^2) after annealing at 100°C. If the wafers are rinsed with deionized water after the HF dip, the bonding energy at 100°C is reduced to 200 mJ/m^2, which is about one tenth of that obtained without the rinse. This illustrates the preference of F to OH as a terminating species.